

DECEMBER 10, 2012

**WSCF Laboratory**

PO Box 650 S3-30  
Richland, WA 99352



December 10, 2012

Scot Fitzgerald  
CH2M-HILL PRC  
PO Box 1600  
Richland, WA 99352

Dear Scot Fitzgerald,

**FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF121441**

Reference: (1) SOW, Mod 2, #36587, Release 3  
(2) MSC-SD-CD-QAPP-017, current version, Waste Sampling & Characterization Facility Quality Assurance Program Plan

This letter contains the following information for sample delivery group WSCF121441

- \* Cover Sheet (Attachment 1)
- \* Narrative (Attachment 2)
- \* Analytical Results (Attachment 3)
- \* Sample Receipt Information (Attachment 4)

Very truly yours,

A handwritten signature in black ink, appearing to read "Dan T. Smith".

Electronically signed by Joseph Hale  
For Lab Manager, Dan T. Smith  
WSCF Analytical Lab  
(509) 373-4804

Attachments 4

CC: w/Attachments

File/LB

**DECEMBER 10, 2012**

**ATTACHMENT 1**

**COVER SHEET**

Consisting of 2 pages  
Including cover page

**WSCF SAF Number Cross Reference**

Group # WSCF121441  
Data Deliverable Date 12/10/12

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
I13-006	B2MXL3	121441001	WATER	11/07/12	11/07/12
I13-006	B2MXL2	121441002	WATER	11/07/12	11/07/12
I13-006	B2MXK2	121441003	WATER	11/07/12	11/07/12
I13-006	B2MXK7	121441004	WATER	11/07/12	11/07/12
I13-006	B2MXK6	121441005	WATER	11/07/12	11/07/12
I13-006	B2MXJ9	121441006	WATER	11/07/12	11/07/12
I13-003	B2MP86	121441007	WATER	11/07/12	11/07/12
I13-003	B2MP83	121441008	WATER	11/07/12	11/07/12
S13-011	B2MML5	121441009	WATER	11/07/12	11/07/12

DECEMBER 10, 2012

ATTACHMENT 2

**NARRATIVE**

Consisting of 4 pages  
Including cover page

**Introduction**

Samples were received at the WSCF laboratory as referenced on the WSCF SAF Number Cross Reference table included in the final report. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Statement of Work (SOW), Master Contract 39818, Revision 3, "Laboratory Analytical Services to CHP RC Soil and Groundwater Remediation Project."*

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4.

It should be noted that the attached chain of custody was not stamped "ICED" by the WSCF Laboratory Sample Custodian during sample receiving. However, based on procedure LO-090-403 form "NOTICE OF IMPROPER SAMPLE SUBMITTAL" was not submitted and was not stamped "NOT ICED". No anomaly was noted during sample receipt.

The following generic data qualifiers (i.e., B, C, D, J and U) may be applicable to this report, as appropriate.

- **B** – Sample results with a concentration greater than the MDL but less than the PQL are B flagged (applies to inorganic and wet chemical analyses), as appropriate.
- **C** – Analyte was detected in the blank and was evaluated. Affected sample results in the batch were C flagged (applies to inorganic and wet chemical analyses).
- **D** – Sample results are D flagged if dilution(s) were required, as appropriate.
- **J** – Sample results with a concentration greater than the MDL but less than the PQL are J flagged (applies to organic analyses), as appropriate.
- **B (organic analyses)** – Analyte was detected in the blank and was evaluated. Affected sample results in the batch were B flagged.
- **U** – Analyzed for but not detected above limiting criteria. Relative Percent Difference (RPD) values associated with an analyte qualified with a "U" are not applicable.

**Analytical Methodology for Requested Analyses**

Refer to *WSCF Method References Report* for a complete listing of approved analytical methods.

**Inorganic Comments**

**ICP-AES Metals** – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- Copper and Zinc were detected in the Blank and evaluated.
- Sodium – Exceeded spiking levels by a factor of 4. Spike recoveries and associated RPDs are not valid.
- All other applicable QC controls are within the established limits.

**ICP-MS Metals** – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- All applicable QC controls are within the established limits.

**Total Alkalinity** – The hold time requirement for this analysis was met. A Duplicate and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- All applicable QC controls are within the established limits.

#### **Radiochemistry Comments**

**Rad Chem** – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike (Matrix Spikes apply only to Technetium & Tritium), Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

Tracers are used to determine chemical yield. RPD is monitored in sample duplicate and is not required for tracer recovery per SOW.

#### **Gamma Energy Analysis:**

- All applicable QC controls are within the established limits.

#### **Gross Alpha / Gross Beta:**

- Gross Beta – Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.
- All other applicable QC controls are within the established limits.

#### **Strontium-89/90:**

- Batch QC 210240

- Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.
- All other applicable QC controls are within the established limits.

**Tritium:**

- All applicable QC controls are within the established limits.

**Technetium-99:**

- All applicable QC controls are within the established limits.

We certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this data package has been authorized by the Analytical Laboratory Manager (or designee) and the Client Services representative as verified by electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

DECEMBER 10, 2012

ATTACHMENT 3

**ANALYTICAL RESULTS**

Consisting of 47 pages  
Including cover page

DECEMBER 10, 2012

## WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600  
Richland, WA 99352

Attention: Scot Fitzgerald

**Contract #** MOA-FH-CHPRC-2008  
**Group #** WSCF121441  
**Report Date** December 10, 2012

Analytical: Electronically signed by Joseph Hale

Client Services: Electronically signed by Marisol Avila

*Solid samples results that have a 'Percent Solid' test are reported on a "dry weight basis", except results of TCLP, Percent Solid, and Total Activity. If no 'Percent Solid' test is reported then the results are reported on an "as received" basis.*

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7005. Information designation of this report is the responsibility of the customer.

## Batch QC List

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF121441

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
210638	210817	5	BLANK	85340	BLANK		ICP-6010 - All possible metals
210638	210817	7	LCS	85342	LCS		ICP-6010 - All possible metals
210638	210817	9	MS	85343	B2MR83(121423005MS)	121423005	ICP-6010 - All possible metals
210638	210817	10	MSD	85344	B2MR83(121423005MSD)	121423005	ICP-6010 - All possible metals
210638	210817	30	SAMPLE	121441007	B2MP86		ICP-6010 - All possible metals
210638	210817	31	SAMPLE	121441008	B2MP83		ICP-6010 - All possible metals
210827	211022	4	BLANK	85614	BLANK		ICP-2008 MS All possible metal
210827	211022	5	LCS	85615	LCS		ICP-2008 MS All possible metal
210827	211022	7	MS	85616	B2MNT0(121436001MS)	121436001	ICP-2008 MS All possible metal
210827	211022	8	MSD	85617	B2MNT0(121436001MSD)	121436001	ICP-2008 MS All possible metal
210827	211022	22	SAMPLE	121441001	B2MXL3		ICP-2008 MS All possible metal
210827	211022	23	SAMPLE	121441002	B2MXL2		ICP-2008 MS All possible metal
210827	211022	24	SAMPLE	121441003	B2MXK2		ICP-2008 MS All possible metal
210827	211022	25	SAMPLE	121441004	B2MXK7		ICP-2008 MS All possible metal
210827	211022	26	SAMPLE	121441005	B2MXK6		ICP-2008 MS All possible metal
210827	211022	27	SAMPLE	121441006	B2MXJ9		ICP-2008 MS All possible metal
210827	211022	28	SAMPLE	121441007	B2MP86		ICP-2008 MS All possible metal
210827	211022	29	SAMPLE	121441008	B2MP83		ICP-2008 MS All possible metal

## Batch QC List

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF121441

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
209935	210032	1	IBLANK	84747	IBLANK		Gamma Energy Analysis-general
209935	210032	2	LCS	84748	LCS		Gamma Energy Analysis-general
209935	210032	3	DUP	84749	B2MR83(121423005DUP) 121423005		Gamma Energy Analysis-general
209935	210032	6	SAMPLE	121441006	B2MXJ9		Gamma Energy Analysis-general
210114	210415	1	BLANK	84806	BLANK		Tritium by LSC
210114	210415	2	LCS	84807	LCS		Tritium by LSC
210114	210415	4	DUP	84808	B2MP50(121432006DUP) 121432006		Tritium by LSC
210114	210415	5	MS	84809	B2MP50(121432006MS) 121432006		Tritium by LSC
210114	210415	12	SAMPLE	121441004	B2MXK7		Tritium by LSC
210114	210415	13	SAMPLE	121441005	B2MXK6		Tritium by LSC
210114	210415	14	SAMPLE	121441006	B2MXJ9		Tritium by LSC
210114	210415	15	SAMPLE	121441008	B2MP83		Tritium by LSC
210115	210330	1	BLANK	84810	BLANK		TC99 by Liquid Scintillation
210115	210330	2	LCS	84811	LCS		TC99 by Liquid Scintillation
210115	210330	4	DUP	84812	B2MXL9(121439002DUP) 121439002		TC99 by Liquid Scintillation
210115	210330	5	MS	84813	B2MXL9(121439002MS) 121439002		TC99 by Liquid Scintillation
210115	210330	6	SAMPLE	121441004	B2MXK7		TC99 by Liquid Scintillation
210115	210330	7	SAMPLE	121441005	B2MXK6		TC99 by Liquid Scintillation
210115	210330	8	SAMPLE	121441006	B2MXJ9		TC99 by Liquid Scintillation
210115	210330	9	SAMPLE	121441008	B2MP83		TC99 by Liquid Scintillation
210217	210373	1	BLANK	84845	BLANK		GAB Discrete analysis Alpha only
210217	210373	2	LCS	84846	LCS		GAB Discrete analysis Alpha only
210217	210373	4	DUP	84847	B2MR83(121423005DUP) 121423005		GAB Discrete analysis Alpha only

## Batch QC List

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF121441

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
210217	210373	9	SAMPLE	121441006	B2MXJ9		GAB Discrete analysis Alpha only
210217	210373	10	SAMPLE	121441009	B2MML5		GAB Discrete analysis Alpha only
210217	210378	1	BLANK	84845	BLANK		GAB Discrete analysis Beta only
210217	210378	2	LCS	84846	LCS		GAB Discrete analysis Beta only
210217	210378	4	DUP	84847	B2MR83(121423005DUP) 121423005		GAB Discrete analysis Beta only
210217	210378	9	SAMPLE	121441006	B2MXJ9		GAB Discrete analysis Beta only
210217	210378	10	SAMPLE	121441009	B2MML5		GAB Discrete analysis Beta only
210240	211239	1	BLANK	84911	BLANK		Strontium 89/90 (GPC/GEA)
210240	211239	2	LCS	84912	LCS		Strontium 89/90 (GPC/GEA)
210240	211239	3	DUP	84913	B2MKK8(121430005DUP 121430005		Strontium 89/90 (GPC/GEA)
210240	211239	8	SAMPLE	121441004	B2MXK7		Strontium 89/90 (GPC/GEA)
210240	211239	9	SAMPLE	121441005	B2MXK6		Strontium 89/90 (GPC/GEA)
210240	211239	10	SAMPLE	121441006	B2MXJ9		Strontium 89/90 (GPC/GEA)
210241	211036	1	BLANK	84914	BLANK		Strontium 89/90 (GPC/GEA)
210241	211036	2	LCS	84915	LCS		Strontium 89/90 (GPC/GEA)
210241	211036	3	DUP	84916	B2MP83(121441008DUP) 121441008		Strontium 89/90 (GPC/GEA)
210241	211036	4	SAMPLE	121441008	B2MP83		Strontium 89/90 (GPC/GEA)

DECEMBER 10, 2012

Batch QC List

Attention Scot Fitzgerald  
Department Wet Chemistry

Group # WSCF121441

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
210122	210122	1	LCS	84826	LCS		Total Alkalinity as mg/L CaCO <sub>3</sub> (Water)
210122	210122	5	DUP	84827	B2LLT4(121422001DUP)	121422001	Total Alkalinity as mg/L CaCO <sub>3</sub> (Water)
210122	210122	13	LCS	84828	LCS		Total Alkalinity as mg/L CaCO <sub>3</sub> (Water)
210122	210122	16	SAMPLE	121441009	B2MML5		Total Alkalinity as mg/L CaCO <sub>3</sub> (Water)
210122	210122	19	LCS	84829	LCS		Total Alkalinity as mg/L CaCO <sub>3</sub> (Water)

**Attention** Scot Fitzgerald  
**Department** Inorganic

**Group #** WSCF121441

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-505-411	Elemental Analysis by ICP Atomic Emission Spectroscopy (ICP AES)		
	EPA SW-846	6010C	Inductively Coupled Plasma-Atomic Emmision Spectrometry
	HEIS	6010_METALS_ICP	Inductively Coupled Plasma-Atomic Emmision Spectrometry
LA-505-412	Determination of Trace Elements in Waters & Wastes by ICP Mass Spectrometry		
	EPA-600/R-94-111	200.8	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma
	HEIS	200.8_METALS_ICPMS	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma, Mass Spec.

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Attention      Scot Fitzgerald  
Department    Radiochemistry

Group #      WSCF121441

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

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LA-220-406	Strontium-89 and 90 in Aqueous Samples by SR-SPEC Separation		
	HEIS	SRTOT_SEP_PRECIP_GPC	Strontium 89/90, by Sr-Spec Sep.
LA-508-481	Gamma Energy Analysis using the Canberra Genie Ssystem		
	HEIS	GAMMA_GS	Gamma Energy Analysis
LA-508-421	Operation of the Tri-Carb Model 2500TR Liquid Scintillation Analyzer		
	HEIS	ALPHA_LSC	A/B Liquid Scintillation
	HEIS	BETA_LSC	A/B Liquid Scintillation
	HEIS	TC99_3MDSK_LSC	TC99 by Liquid Scintillation
	HEIS	TRITIUM_EIE_LSC	Tritium, by Eichrome ion exchange, LSC
LA-508-415	Operation Of The Protean 2-Inch Alpha/Beta Counting System For Gross Alpha/ Beta Samples		
	HEIS	ALPHA_GPC	Gross Alpha by GPC
	HEIS	BETA_GPC	Gross Beta by GPC
	HEIS	SRTOT_SEP_PRECIP_GPC	Strontium beta isotopic, GPC

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Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Attention Scot Fitzgerald  
Department Wet Chemistry

Group # WSCF121441

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-531-411	Alkalinity		
	SM	2320	Alkalinity
	HEIS	2320_ALKALINITY	Alkalinity

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

**Attention** Scot Fitzgerald  
**Department** Inorganic

**Group #** WSCF121441

**Sample #** 121441001  
**SAF#** I13-006  
**Sample ID** B2MXL3

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPMS Prep (W)</b>										11/29/12
<b>ICP-2008 MS All possible metal</b>										
Aluminum	7429-90-5	LA-505-412	UD	<10		ug/L	2	10	100	11/30/12
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	11/30/12
Barium	7440-39-3	LA-505-412	D	35.4		ug/L	2	0.40	4.0	11/30/12
Beryllium	7440-41-7	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	11/30/12
Cadmium	7440-43-9	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Chromium	7440-47-3	LA-505-412	D	5.93		ug/L	2	0.20	2.0	11/30/12
Cobalt	7440-48-4	LA-505-412	UD	<0.10		ug/L	2	0.10	0.50	11/30/12
Copper	7440-50-8	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	11/30/12
Lead	7439-92-1	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Molybdenum	7439-98-7	LA-505-412	D	3.33		ug/L	2	0.10	1.0	11/30/12
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Arsenic	7440-38-2	LA-505-412	D	5.30		ug/L	2	0.40	4.0	11/30/12
Selenium	7782-49-2	LA-505-412	UD	<2.0		ug/L	2	2.0	20	11/30/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Inorganic

**Group #** WSCF121441

<b>Sample #</b>	121441002	<b>Matrix</b>	WATER
<b>SAF#</b>	I13-006	<b>Sampled</b>	11/07/12
<b>Sample ID</b>	B2MXL2	<b>Received</b>	11/07/12

<b>Test Performed</b>	<b>CAS #</b>	<b>Method</b>	<b>RQ</b>	<b>Result</b>	<b>TP Err</b>	<b>Units</b>	<b>DF</b>	<b>MDL</b>	<b>PQL</b>	<b>Analyzed</b>
<b>ICPMS Prep (W)</b>										11/29/12
<b>ICP-2008 MS All possible metal</b>										
Aluminum	7429-90-5	LA-505-412	UD	<10		ug/L	2	10	100	11/30/12
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	11/30/12
Barium	7440-39-3	LA-505-412	D	35.3		ug/L	2	0.40	4.0	11/30/12
Beryllium	7440-41-7	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	11/30/12
Cadmium	7440-43-9	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Chromium	7440-47-3	LA-505-412	D	5.94		ug/L	2	0.20	2.0	11/30/12
Cobalt	7440-48-4	LA-505-412	BD	0.110		ug/L	2	0.10	0.50	11/30/12
Copper	7440-50-8	LA-505-412	BD	0.206		ug/L	2	0.20	2.0	11/30/12
Lead	7439-92-1	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Molybdenum	7439-98-7	LA-505-412	D	3.31		ug/L	2	0.10	1.0	11/30/12
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Arsenic	7440-38-2	LA-505-412	D	5.40		ug/L	2	0.40	4.0	11/30/12
Selenium	7782-49-2	LA-505-412	UD	<2.0		ug/L	2	2.0	20	11/30/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Inorganic

**Group #** WSCF121441

**Sample #** 121441003  
**SAF#** I13-006  
**Sample ID** B2MXK2

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPMS Prep (W)</b>										11/29/12
<b>ICP-2008 MS All possible metal</b>										
Aluminum	7429-90-5	LA-505-412	UD	<10		ug/L	2	10	100	11/30/12
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	11/30/12
Barium	7440-39-3	LA-505-412	D	30.2		ug/L	2	0.40	4.0	11/30/12
Beryllium	7440-41-7	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	11/30/12
Cadmium	7440-43-9	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Chromium	7440-47-3	LA-505-412	BD	1.65		ug/L	2	0.20	2.0	11/30/12
Cobalt	7440-48-4	LA-505-412	UD	<0.10		ug/L	2	0.10	0.50	11/30/12
Copper	7440-50-8	LA-505-412	BD	0.416		ug/L	2	0.20	2.0	11/30/12
Lead	7439-92-1	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Molybdenum	7439-98-7	LA-505-412	D	4.09		ug/L	2	0.10	1.0	11/30/12
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Arsenic	7440-38-2	LA-505-412	D	10.1		ug/L	2	0.40	4.0	11/30/12
Selenium	7782-49-2	LA-505-412	UD	<2.0		ug/L	2	2.0	20	11/30/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Inorganic

**Group #** WSCF121441

**Sample #** 121441004  
**SAF#** I13-006  
**Sample ID** B2MXK7

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPMS Prep (W)</b>										11/29/12
<b>ICP-2008 MS All possible metal</b>										
Aluminum	7429-90-5	LA-505-412	UD	<10		ug/L	2	10	100	11/30/12
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	11/30/12
Barium	7440-39-3	LA-505-412	D	34.3		ug/L	2	0.40	4.0	11/30/12
Beryllium	7440-41-7	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	11/30/12
Cadmium	7440-43-9	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Chromium	7440-47-3	LA-505-412	D	10.8		ug/L	2	0.20	2.0	11/30/12
Cobalt	7440-48-4	LA-505-412	BD	0.126		ug/L	2	0.10	0.50	11/30/12
Copper	7440-50-8	LA-505-412	BD	0.418		ug/L	2	0.20	2.0	11/30/12
Lead	7439-92-1	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Molybdenum	7439-98-7	LA-505-412	D	3.31		ug/L	2	0.10	1.0	11/30/12
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Arsenic	7440-38-2	LA-505-412	D	5.23		ug/L	2	0.40	4.0	11/30/12
Selenium	7782-49-2	LA-505-412	UD	<2.0		ug/L	2	2.0	20	11/30/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Inorganic

**Group #** WSCF121441

**Sample #** 121441005  
**SAF#** I13-006  
**Sample ID** B2MXK6

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPMS Prep (W)</b>										11/29/12
<b>ICP-2008 MS All possible metal</b>										
Aluminum	7429-90-5	LA-505-412	UD	<10		ug/L	2	10	100	11/30/12
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	11/30/12
Barium	7440-39-3	LA-505-412	D	36.0		ug/L	2	0.40	4.0	11/30/12
Beryllium	7440-41-7	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	11/30/12
Cadmium	7440-43-9	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Chromium	7440-47-3	LA-505-412	D	14.3		ug/L	2	0.20	2.0	11/30/12
Cobalt	7440-48-4	LA-505-412	BD	0.128		ug/L	2	0.10	0.50	11/30/12
Copper	7440-50-8	LA-505-412	BD	0.424		ug/L	2	0.20	2.0	11/30/12
Lead	7439-92-1	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Molybdenum	7439-98-7	LA-505-412	D	3.49		ug/L	2	0.10	1.0	11/30/12
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Arsenic	7440-38-2	LA-505-412	D	5.49		ug/L	2	0.40	4.0	11/30/12
Selenium	7782-49-2	LA-505-412	UD	<2.0		ug/L	2	2.0	20	11/30/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Inorganic

**Group #** WSCF121441

**Sample #** 121441006  
**SAF#** I13-006  
**Sample ID** B2MXJ9

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPMS Prep (W)</b>										11/29/12
<b>ICP-2008 MS All possible metal</b>										
Aluminum	7429-90-5	LA-505-412	BD	17.1		ug/L	2	10	100	11/30/12
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	11/30/12
Barium	7440-39-3	LA-505-412	D	31.3		ug/L	2	0.40	4.0	11/30/12
Beryllium	7440-41-7	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	11/30/12
Cadmium	7440-43-9	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Chromium	7440-47-3	LA-505-412	D	2.09		ug/L	2	0.20	2.0	11/30/12
Cobalt	7440-48-4	LA-505-412	UD	<0.10		ug/L	2	0.10	0.50	11/30/12
Copper	7440-50-8	LA-505-412	BD	0.740		ug/L	2	0.20	2.0	11/30/12
Lead	7439-92-1	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Molybdenum	7439-98-7	LA-505-412	D	4.23		ug/L	2	0.10	1.0	11/30/12
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Arsenic	7440-38-2	LA-505-412	D	10.1		ug/L	2	0.40	4.0	11/30/12
Selenium	7782-49-2	LA-505-412	UD	<2.0		ug/L	2	2.0	20	11/30/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Inorganic

**Group #** WSCF121441

<b>Sample #</b>	121441007	<b>Matrix</b>	WATER
<b>SAF#</b>	I13-003	<b>Sampled</b>	11/07/12
<b>Sample ID</b>	B2MP86	<b>Received</b>	11/07/12

<b>Test Performed</b>	<b>CAS #</b>	<b>Method</b>	<b>RQ</b>	<b>Result</b>	<b>TP Err</b>	<b>Units</b>	<b>DF</b>	<b>MDL</b>	<b>PQL</b>	<b>Analyzed</b>
<b>ICPAES Prep (W)</b>										11/26/12
<b>ICP-6010 - All possible metals</b>										
Iron	7439-89-6	LA-505-411	B	26.1		ug/L	1	19	95	11/28/12
Magnesium	7439-95-4	LA-505-411		15500		ug/L	1	4.0	20	11/28/12
Manganese	7439-96-5	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Nickel	7440-02-0	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Potassium	7440-09-7	LA-505-411		4380		ug/L	1	76	380	11/28/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Sodium	7440-23-5	LA-505-411		27900		ug/L	1	10	50	11/28/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	11/28/12
Barium	7440-39-3	LA-505-411		58.6		ug/L	1	4.0	20	11/28/12
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Chromium	7440-47-3	LA-505-411	B	10.7		ug/L	1	5.0	25	11/28/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Vanadium	7440-62-2	LA-505-411	B	6.80		ug/L	1	5.0	25	11/28/12
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	25	11/28/12
Calcium	7440-70-2	LA-505-411		26400		ug/L	1	49	240	11/28/12
Strontium	7440-24-6	LA-505-411		434		ug/L	1	9.0	45	11/28/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

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B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Inorganic

**Group #** WSCF121441

<b>Sample #</b>	121441007	<b>Matrix</b>	WATER
<b>SAF#</b>	I13-003	<b>Sampled</b>	11/07/12
<b>Sample ID</b>	B2MP86	<b>Received</b>	11/07/12

<b>Test Performed</b>	<b>CAS #</b>	<b>Method</b>	<b>RQ</b>	<b>Result</b>	<b>TP Err</b>	<b>Units</b>	<b>DF</b>	<b>MDL</b>	<b>PQL</b>	<b>Analyzed</b>
Beryllium	7440-41-7	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
<b>ICPMS Prep (W)</b>										<b>11/29/12</b>
<b>ICP-2008 MS All possible metal</b>										
Aluminum	7429-90-5	LA-505-412	UD	<10		ug/L	2	10	100	11/30/12
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	11/30/12
Barium	7440-39-3	LA-505-412	D	64.8		ug/L	2	0.40	4.0	11/30/12
Beryllium	7440-41-7	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	11/30/12
Cadmium	7440-43-9	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Chromium	7440-47-3	LA-505-412	D	10.1		ug/L	2	0.20	2.0	11/30/12
Cobalt	7440-48-4	LA-505-412	BD	0.108		ug/L	2	0.10	0.50	11/30/12
Copper	7440-50-8	LA-505-412	BD	0.286		ug/L	2	0.20	2.0	11/30/12
Lead	7439-92-1	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Molybdenum	7439-98-7	LA-505-412	D	4.39		ug/L	2	0.10	1.0	11/30/12
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Arsenic	7440-38-2	LA-505-412	BD	1.59		ug/L	2	0.40	4.0	11/30/12
Selenium	7782-49-2	LA-505-412	UD	<2.0		ug/L	2	2.0	20	11/30/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Inorganic

**Group #** WSCF121441

**Sample #** 121441008  
**SAF#** I13-003  
**Sample ID** B2MP83

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPAES Prep (W)</b>										11/26/12
<b>ICP-6010 - All possible metals</b>										
Iron	7439-89-6	LA-505-411	B	56.2		ug/L	1	19	95	11/28/12
Magnesium	7439-95-4	LA-505-411		15700		ug/L	1	4.0	20	11/28/12
Manganese	7439-96-5	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Nickel	7440-02-0	LA-505-411	B	6.80		ug/L	1	4.0	20	11/28/12
Potassium	7440-09-7	LA-505-411		4470		ug/L	1	76	380	11/28/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Sodium	7440-23-5	LA-505-411		28300		ug/L	1	10	50	11/28/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	11/28/12
Barium	7440-39-3	LA-505-411		59.6		ug/L	1	4.0	20	11/28/12
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Chromium	7440-47-3	LA-505-411	B	16.7		ug/L	1	5.0	25	11/28/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Vanadium	7440-62-2	LA-505-411	B	6.10		ug/L	1	5.0	25	11/28/12
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	25	11/28/12
Calcium	7440-70-2	LA-505-411		26900		ug/L	1	49	240	11/28/12
Strontium	7440-24-6	LA-505-411		440		ug/L	1	9.0	45	11/28/12

MDL = Minimum Detection Limit

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

U - Analyzed for but not detected above limiting criteria.

RQ = Result Qualifier

C - Analyte was found in the Associated Blank. (Inorganic)

X,Y or Z - See comment detail and/or narrative.

TP Err = Total Propagated Error

D - Analyte was reported at a secondary dilution factor.

PQL is equivalent to Estimated Quantitation Limit (EQL)

DF = Dilution Factor

E - Analyte is an estimate, see comment section.

o - LCS recovery outside established laboratory acceptance limits.

+ - Indicates more than nine qualifier

N - MS and/or MSD recovery outside control limits.

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Inorganic

**Group #** WSCF121441

**Sample #** 121441008  
**SAF#** I13-003  
**Sample ID** B2MP83

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Beryllium	7440-41-7	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
<b>ICPMS Prep (W)</b>										<b>11/29/12</b>
<b>ICP-2008 MS All possible metal</b>										
Aluminum	7429-90-5	LA-505-412	UD	<10		ug/L	2	10	100	11/30/12
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	11/30/12
Barium	7440-39-3	LA-505-412	D	64.2		ug/L	2	0.40	4.0	11/30/12
Beryllium	7440-41-7	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	11/30/12
Cadmium	7440-43-9	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Chromium	7440-47-3	LA-505-412	D	14.9		ug/L	2	0.20	2.0	11/30/12
Cobalt	7440-48-4	LA-505-412	BD	0.154		ug/L	2	0.10	0.50	11/30/12
Copper	7440-50-8	LA-505-412	BD	0.410		ug/L	2	0.20	2.0	11/30/12
Lead	7439-92-1	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Molybdenum	7439-98-7	LA-505-412	D	4.29		ug/L	2	0.10	1.0	11/30/12
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/30/12
Arsenic	7440-38-2	LA-505-412	BD	1.58		ug/L	2	0.40	4.0	11/30/12
Selenium	7782-49-2	LA-505-412	BD	2.02		ug/L	2	2.0	20	11/30/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Radiochemistry

**Group #** WSCF121441

**Sample #** 121441004  
**SAF#** I13-006  
**Sample ID** B2MXK7

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Strontium 89/90 WATER/LIQUID PREP</b>										12/04/12
<b>Strontium 89/90 (GPC/GEA)</b>										
Strontium-89_90	SR-RAD	LA-220-406		1.1	.58	pCi/L	1	0.80		12/05/12
<b>TC99 by Liquid Scin. WATER/LIQUID PREP</b>										11/13/12
<b>TC99 by Liquid Scintillation</b>										
Technetium-99	14133-76-7	LA-508-421	U	-0.90	3.4	pCi/L	1	5.6		11/14/12
<b>Tritium by LSC EICHROM WA/LIQ PREP</b>										11/13/12
<b>Tritium by LSC</b>										
Tritium	10028-17-8	LA-508-421		820	270	pCi/L	1	300		11/16/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE

U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Radiochemistry

**Group #** WSCF121441

**Sample #** 121441005  
**SAF#** I13-006  
**Sample ID** B2MXK6

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Strontium 89/90 WATER/LIQUID PREP</b>										12/04/12
<b>Strontium 89/90 (GPC/GEA)</b>										
Strontium-89_90	SR-RAD	LA-220-406	U	0.29	.53	pCi/L	1	0.89		12/05/12
<b>TC99 by Liquid Scin. WATER/LIQUID PREP</b>										11/13/12
<b>TC99 by Liquid Scintillation</b>										
Technetium-99	14133-76-7	LA-508-421	U	1.3	3.4	pCi/L	1	5.6		11/14/12
<b>Tritium by LSC EICHROM WA/LIQ PREP</b>										11/13/12
<b>Tritium by LSC</b>										
Tritium	10028-17-8	LA-508-421		730	260	pCi/L	1	300		11/16/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE

U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Radiochemistry

**Group #** WSCF121441

**Sample #** 121441006  
**SAF#** I13-006  
**Sample ID** B2MXJ9

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>GAB Prep for Discrete Analysis (W)</b>										11/16/12
<b>GAB Discrete analysis Alpha only</b>										
Gross Alpha	12587-46-1	LA-508-415	U	-2.2	2.9	pCi/L	1	6.3		11/26/12
<b>GAB Discrete analysis Beta only</b>										
Gross Beta	12587-47-2	LA-508-415		19	6.5	pCi/L	1	9.0		11/26/12
<b>Preparation for GEA (W)</b>										11/08/12
<b>Gamma Energy Analysis-general</b>										
Antimony-125	14234-35-6	LA-508-481	U	4.8	9.7	pCi/L	1	17		11/12/12
Cesium-134	13967-70-9	LA-508-481	U	2.9	22	pCi/L	1	38		11/12/12
Cesium-137	10045-97-3	LA-508-481	U	-1.7	3.6	pCi/L	1	5.9		11/12/12
Cobalt-60	10198-40-0	LA-508-481	U	-1.4	3.2	pCi/L	1	5.5		11/12/12
Europium-152	14683-23-9	LA-508-481	U	27	25	pCi/L	1	20		11/12/12
Europium-154	15585-10-1	LA-508-481	U	-0.50	9.8	pCi/L	1	18		11/12/12
Europium-155	14391-16-3	LA-508-481	U	1.2	12	pCi/L	1	20		11/12/12
Potassium-40	13966-00-2	LA-508-481	U	-45	57	pCi/L	1	120		11/12/12
Ruthenium-106	13967-48-1	LA-508-481	U	7.5	33	pCi/L	1	57		11/12/12
Beryllium-7	13966-02-4	LA-508-481	U	-1.0	30	pCi/L	1	52		11/12/12
<b>Strontium 89/90 WATER/LIQUID PREP</b>										12/04/12
<b>Strontium 89/90 (GPC/GEA)</b>										

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE

U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Radiochemistry

**Group #** WSCF121441

**Sample #** 121441006  
**SAF#** I13-006  
**Sample ID** B2MXJ9

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	0.57	.56	pCi/L	1	0.89		12/05/12
<b>TC99 by Liquid Scin. WATER/LIQUID PREP</b>										<b>11/13/12</b>
<b>TC99 by Liquid Scintillation</b>										
Technetium-99	14133-76-7	LA-508-421	U	0.70	3.4	pCi/L	1	5.6		11/14/12
<b>Tritium by LSC EICHROM WA/LIQ PREP</b>										<b>11/13/12</b>
<b>Tritium by LSC</b>										
Tritium	10028-17-8	LA-508-421		520	230	pCi/L	1	300		11/16/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE

U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Radiochemistry

**Group #** WSCF121441

**Sample #** 121441008  
**SAF#** I13-003  
**Sample ID** B2MP83

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Strontium 89/90 WATER/LIQUID PREP</b>										11/28/12
<b>Strontium 89/90 (GPC/GEA)</b>										
Strontium-89_90	SR-RAD	LA-220-406	U	-0.34	.6	pCi/L	1	1.1		12/04/12
<b>TC99 by Liquid Scin. WATER/LIQUID PREP</b>										11/13/12
<b>TC99 by Liquid Scintillation</b>										
Technetium-99	14133-76-7	LA-508-421	U	0.20	3.4	pCi/L	1	5.6		11/14/12
<b>Tritium by LSC EICHROM WA/LIQ PREP</b>										11/13/12
<b>Tritium by LSC</b>										
Tritium	10028-17-8	LA-508-421	U	23	220	pCi/L	1	300		11/16/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE

U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

**Attention** Scot Fitzgerald  
**Department** Radiochemistry

**Group #** WSCF121441

**Sample #** 121441009  
**SAF#** S13-011  
**Sample ID** B2MML5

**Matrix** WATER  
**Sampled** 11/07/12  
**Received** 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>GAB Prep for Discrete Analysis (W)</b>										11/16/12
<b>GAB Discrete analysis Alpha only</b>										
Gross Alpha	12587-46-1	LA-508-415	U	1.3	1.7	pCi/L	1	2.7		11/26/12
<b>GAB Discrete analysis Beta only</b>										
Gross Beta	12587-47-2	LA-508-415		8.4	2.8	pCi/L	1	3.8		11/26/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE

U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald  
Department Wet Chemistry

Group # WSCF121441

Sample # 121441009  
SAF# S13-011  
Sample ID B2MML5

Matrix WATER  
Sampled 11/07/12  
Received 11/07/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										11/12/12
<b>Total Alkalinity as mg/L CaCO<sub>3</sub> (Water)</b>										
Total Alkalinity as CaCO <sub>3</sub>	ALKALINITY	LA-531-411		130		mg/L	1	1	10	11/12/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte &lt; the RDL but &gt;= the IDL/MDL.

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

N - MS and/or MSD sample recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF121441

Analytical Batch 210032 (QC Batch: 209935) Test Gamma Energy Analysis-general  
 Associated Samples 121441006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>IBLANK</b>										
<b>QC Sample #84747</b>										
Antimony-125	14234-35-6	-0.44	pCi/L					U		11/13/12
Cesium-134	13967-70-9	-1.1	pCi/L					U		11/13/12
Cesium-137	10045-97-3	-1.0	pCi/L					U		11/13/12
Cobalt-60	10198-40-0	1.2	pCi/L					U		11/13/12
Europium-152	14683-23-9	15	pCi/L					U		11/13/12
Europium-154	15585-10-1	17	pCi/L					U		11/13/12
Europium-155	14391-16-3	8.4	pCi/L					U		11/13/12
Potassium-40	13966-00-2	-63	pCi/L					U		11/13/12
Ruthenium-106	13967-48-1	-10	pCi/L					U		11/13/12
Beryllium-7	13966-02-4	-12	pCi/L					U		11/13/12
<b>LCS</b>										
<b>QC Sample #84748</b>										
Cesium-137	10045-97-3	6300	pCi/sample	104.2	80 - 120					11/13/12
Cobalt-60	10198-40-0	10000	pCi/sample	102.6	80 - 120					11/13/12
<b>DUP</b>										
<b>QC Sample #84749</b>										
<b>Original 121423005</b>										
Antimony-125	14234-35-6	-6.5	pCi/L			1768.40	20	*	U	11/12/12
Cesium-134	13967-70-9	0.39	pCi/L			-210.40	20	*	U	11/12/12

\* - QC result out of range

n/a - Not Applicable

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF121441

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed	
Cesium-137	10045-97-3	-4.1	pCi/L			-302.40	20	*	U	11/12/12
Cobalt-60	10198-40-0	-1.7	pCi/L			-435.50	20	*	U	11/12/12
Europium-152	14683-23-9	2.2	pCi/L			-430.90	20	*	U	11/12/12
Europium-154	15585-10-1	-4.8	pCi/L			-52.80	20	*	U	11/12/12
Europium-155	14391-16-3	11	pCi/L			216.60	20	*	U	11/12/12
Potassium-40	13966-00-2	-43	pCi/L			-2.00	20		U	11/12/12
Ruthenium-106	13967-48-1	-0.31	pCi/L			222.20	20	*	U	11/12/12
Beryllium-7	13966-02-4	-7.8	pCi/L			-130.50	20	*	U	11/12/12

\* - QC result out of range

n/a - Not Applicable

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF121441

Analytical Batch 210122 (QC Batch: 210122) Test Total Alkalinity as mg/L CaCO<sub>3</sub> (Water)  
 Associated Samples 121441009

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed	
<b>LCS</b>										<b>QC Sample #84826</b>	
Total Alkalinity as CaCO <sub>3</sub>	ALKALINITY	97	mg/L	97.4	80 - 120					11/12/12	
<b>DUP</b>										<b>QC Sample #84827</b>	
		<b>Original 121422001</b>									
Total Alkalinity as CaCO <sub>3</sub>	ALKALINITY	200	mg/L				0.00	20		11/12/12	
<b>LCS</b>										<b>QC Sample #84828</b>	
Total Alkalinity as CaCO <sub>3</sub>	ALKALINITY	97	mg/L	97.3	80 - 120					11/12/12	
<b>LCS</b>										<b>QC Sample #84829</b>	
Total Alkalinity as CaCO <sub>3</sub>	ALKALINITY	97	mg/L	97.2	80 - 120					11/12/12	

\* - QC result out of range

n/a - Not Applicable

**Quality Control Report****DECEMBER 10, 2012**Attention Scot Fitzgerald  
Department Radiochemistry**Group #** WSCF121441**Analytical Batch** 210330 (QC Batch: 210115)      **Test** TC99 by Liquid Scintillation  
**Associated Samples** 121441004, 121441005, 121441006, 121441008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>										<b>QC Sample #84810</b>
Technetium-99										14133-76-7
			1.5	pCi/L					U	11/14/12
<b>LCS</b>										<b>QC Sample #84811</b>
Technetium-99										14133-76-7
<b>DUP</b>										<b>QC Sample #84812</b>
Technetium-99										14133-76-7
<b>MS</b>										<b>Original 121439002</b>
Technetium-99										14133-76-7
<b>QC Sample #84813</b>										<b>Original 121439002</b>
Technetium-99										14133-76-7
850										98.2
pCi/L										75 - 125
11/14/12										

\* - QC result out of range

n/a - Not Applicable

**Quality Control Report****DECEMBER 10, 2012**Attention Scot Fitzgerald  
Department Radiochemistry**Group #** WSCF121441**Analytical Batch** 210373 (QC Batch: 210217)      **Test** GAB Discrete analysis Alpha only  
**Associated Samples** 121441006, 121441009

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>										<b>QC Sample #84845</b>
Gross Alpha										U 11/26/12
<b>LCS</b>										<b>QC Sample #84846</b>
Gross Alpha										11/26/12
<b>DUP</b>										<b>QC Sample #84847</b>
Gross Alpha										<b>Original 121423005</b>
Gross Alpha	12587-46-1	1.3	pCi/L			25.60	20	*	U	11/26/12

\* - QC result out of range

n/a - Not Applicable

**Quality Control Report****DECEMBER 10, 2012****Attention** Scot Fitzgerald  
**Department** Radiochemistry**Group #** WSCF121441**Analytical Batch** 210378 (QC Batch: 210217)      **Test** GAB Discrete analysis Beta only  
**Associated Samples** 121441006, 121441009

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>										<b>QC Sample #84845</b>
Gross Beta										12587-47-2
LCS			1.1	pCi/L					U	11/26/12
<b>QC Sample #84846</b>										
Gross Beta										12587-47-2
DUP			250	pCi/L	98.4	80 - 120				11/26/12
<b>QC Sample #84847</b>										
Original 121423005										
Gross Beta	12587-47-2	5.3	pCi/L				51.70	20	*	X
* - QC result out of range										11/26/12
n/a - Not Applicable										

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF121441

**Analytical Batch** 210415 (QC Batch: 210114)      **Test** Tritium by LSC  
**Associated Samples** 121441004, 121441005, 121441006, 121441008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>										
<b>QC Sample #84806</b>										
Tritium LCS	10028-17-8	61		pCi/L					U	11/16/12
<b>QC Sample #84807</b>										
Tritium DUP	10028-17-8	3600		pCi/L	115.4	80 - 120				11/16/12
<b>QC Sample #84808</b>										
Original 121432006										
Tritium MS	10028-17-8	510		pCi/L			18.80	20		11/16/12
<b>QC Sample #84809</b>										
Original 121432006										
Tritium	10028-17-8	20000		pCi/L	94.1	75 - 125				11/16/12

\* - QC result out of range

n/a - Not Applicable

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF121441

Analytical Batch 210817 (QC Batch: 210638) Test ICP-6010 - All possible metals  
 Associated Samples 121441007, 121441008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>										<b>QC Sample #85340</b>
Iron	7439-89-6	<19		ug/L				U		11/28/12
Magnesium	7439-95-4	<4.0		ug/L				U		11/28/12
Manganese	7439-96-5	<4.0		ug/L				U		11/28/12
Nickel	7440-02-0	<4.0		ug/L				U		11/28/12
Potassium	7440-09-7	<76		ug/L				U		11/28/12
Silver	7440-22-4	<4.0		ug/L				U		11/28/12
Sodium	7440-23-5	<10		ug/L				U		11/28/12
Antimony	7440-36-0	<36		ug/L				U		11/28/12
Barium	7440-39-3	<4.0		ug/L				U		11/28/12
Cadmium	7440-43-9	<4.0		ug/L				U		11/28/12
Chromium	7440-47-3	<5.0		ug/L				U		11/28/12
Cobalt	7440-48-4	<4.0		ug/L				U		11/28/12
Copper	7440-50-8	5.90		ug/L				B		11/28/12
Vanadium	7440-62-2	<5.0		ug/L				U		11/28/12
Zinc	7440-66-6	7.60		ug/L				B		11/28/12
Calcium	7440-70-2	<49		ug/L				U		11/28/12
Strontium	7440-24-6	<9.0		ug/L				U		11/28/12

\* - QC result out of range

n/a - Not Applicable

**DECEMBER 10, 2012**

**Quality Control Report**

Attention Scot Fitzgerald  
Department Inorganic

**Group #** WSCF121441

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Beryllium	7440-41-7	<4.0		ug/L					U	11/28/12
<b>LCS</b>										
Iron	7439-89-6	996		ug/L	99.6	80 - 120				11/28/12
Magnesium	7439-95-4	10200		ug/L	101.5	80 - 120				11/28/12
Manganese	7439-96-5	1010		ug/L	100.7	80 - 120				11/28/12
Nickel	7440-02-0	957		ug/L	95.7	80 - 120				11/28/12
Potassium	7440-09-7	10800		ug/L	108	80 - 120				11/28/12
Silver	7440-22-4	1020		ug/L	102.3	80 - 120				11/28/12
Sodium	7440-23-5	10000		ug/L	100	80 - 120				11/28/12
Antimony	7440-36-0	1020		ug/L	101.5	80 - 120				11/28/12
Barium	7440-39-3	1010		ug/L	101.2	80 - 120				11/28/12
Cadmium	7440-43-9	988		ug/L	98.8	80 - 120				11/28/12
Chromium	7440-47-3	1000		ug/L	100.2	80 - 120				11/28/12
Cobalt	7440-48-4	976		ug/L	97.6	80 - 120				11/28/12
Copper	7440-50-8	1010		ug/L	101.1	80 - 120				11/28/12
Vanadium	7440-62-2	1010		ug/L	101	80 - 120				11/28/12
Zinc	7440-66-6	1020		ug/L	101.5	80 - 120				11/28/12
Calcium	7440-70-2	20500		ug/L	102.4	80 - 120				11/28/12
Strontium	7440-24-6	989		ug/L	98.9	80 - 120				11/28/12
Beryllium	7440-41-7	1000		ug/L	100	80 - 120				11/28/12
<b>MS</b>										
QC Sample #85343										
Original 121423005										
Iron	7439-89-6	1000		ug/L	100.1	75 - 125				11/28/12

\* - QC result out of range

n/a - Not Applicable

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
 Department Inorganic

Group #

WSCF121441

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Magnesium	7439-95-4	9950	ug/L	99.5	75 - 125					11/28/12
Manganese	7439-96-5	1000	ug/L	100.4	75 - 125					11/28/12
Nickel	7440-02-0	948	ug/L	94.8	75 - 125					11/28/12
Potassium	7440-09-7	10500	ug/L	105.5	75 - 125					11/28/12
Silver	7440-22-4	1000	ug/L	100.5	75 - 125					11/28/12
Sodium	7440-23-5	8650	ug/L	86.5	75 - 125			X		11/28/12
Antimony	7440-36-0	1030	ug/L	102.8	75 - 125					11/28/12
Barium	7440-39-3	1000	ug/L	100	75 - 125					11/28/12
Cadmium	7440-43-9	995	ug/L	99.5	75 - 125					11/28/12
Chromium	7440-47-3	994	ug/L	99.4	75 - 125					11/28/12
Cobalt	7440-48-4	974	ug/L	97.4	75 - 125					11/28/12
Copper	7440-50-8	986	ug/L	98.6	75 - 125					11/28/12
Vanadium	7440-62-2	1000	ug/L	100.1	75 - 125					11/28/12
Zinc	7440-66-6	1030	ug/L	102.7	75 - 125					11/28/12
Calcium	7440-70-2	20000	ug/L	100.1	75 - 125					11/28/12
Strontium	7440-24-6	983	ug/L	98.3	75 - 125					11/28/12
Beryllium	7440-41-7	1000	ug/L	100	75 - 125					11/28/12
<b>MSD</b>		<b>QC Sample #85344</b>								
		<b>Original 121423005</b>						<b>Paired 85343</b>		
Iron	7439-89-6	1020	ug/L	102.3	75 - 125	2.20	20			11/28/12
Magnesium	7439-95-4	10200	ug/L	101.9	75 - 125	1.20	20			11/28/12
Manganese	7439-96-5	1030	ug/L	102.7	75 - 125	2.30	20			11/28/12
Nickel	7440-02-0	970	ug/L	97	75 - 125	2.30	20			11/28/12

\* - QC result out of range

n/a - Not Applicable

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
 Department Inorganic

Group #

WSCF121441

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Potassium	7440-09-7	10800	ug/L	108.1	75 - 125	1.70	20			11/28/12
Silver	7440-22-4	1020	ug/L	101.7	75 - 125	1.20	20			11/28/12
Sodium	7440-23-5	8790	ug/L	87.9	75 - 125	0.30	20	X		11/28/12
Antimony	7440-36-0	1050	ug/L	105.3	75 - 125	2.40	20			11/28/12
Barium	7440-39-3	1020	ug/L	101.9	75 - 125	1.80	20			11/28/12
Cadmium	7440-43-9	1010	ug/L	101.4	75 - 125	1.90	20			11/28/12
Chromium	7440-47-3	1020	ug/L	102.1	75 - 125	2.70	20			11/28/12
Cobalt	7440-48-4	992	ug/L	99.2	75 - 125	1.80	20			11/28/12
Copper	7440-50-8	1010	ug/L	100.8	75 - 125	2.20	20			11/28/12
Vanadium	7440-62-2	1020	ug/L	102.3	75 - 125	2.10	20			11/28/12
Zinc	7440-66-6	1040	ug/L	104.5	75 - 125	1.70	20			11/28/12
Calcium	7440-70-2	20600	ug/L	102.9	75 - 125	1.00	20			11/28/12
Strontium	7440-24-6	1010	ug/L	101	75 - 125	2.20	20			11/28/12
Beryllium	7440-41-7	1020	ug/L	102.4	75 - 125	2.40	20			11/28/12

\* - QC result out of range

n/a - Not Applicable

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF121441

Analytical Batch 211022 (QC Batch: 210827) Test ICP-2008 MS All possible metal  
 Associated Samples 121441001, 121441002, 121441003, 121441004, 121441005, 121441006, 121441007, 121441008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>										<b>QC Sample #85614</b>
Aluminum	7429-90-5		<5.0	ug/L				U		11/30/12
Silver	7440-22-4		<0.050	ug/L				U		11/30/12
Antimony	7440-36-0		<0.30	ug/L				U		11/30/12
Barium	7440-39-3		<0.20	ug/L				U		11/30/12
Beryllium	7440-41-7		<0.10	ug/L				U		11/30/12
Cadmium	7440-43-9		<0.050	ug/L				U		11/30/12
Chromium	7440-47-3		<0.10	ug/L				U		11/30/12
Cobalt	7440-48-4		<0.050	ug/L				U		11/30/12
Copper	7440-50-8		<0.10	ug/L				U		11/30/12
Lead	7439-92-1		<0.050	ug/L				U		11/30/12
Molybdenum	7439-98-7		<0.050	ug/L				U		11/30/12
Thallium	7440-28-0		<0.050	ug/L				U		11/30/12
Tin	7440-31-5		<0.050	ug/L				U		11/30/12
Arsenic	7440-38-2		<0.20	ug/L				U		11/30/12
Selenium	7782-49-2		<1.0	ug/L				U		11/30/12
<b>LCS</b>										<b>QC Sample #85615</b>

\* - QC result out of range

n/a - Not Applicable

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF121441

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Aluminum	7429-90-5	440	ug/L	109.9	85 - 115					11/30/12
Silver	7440-22-4	44.2	ug/L	110.4	85 - 115					11/30/12
Antimony	7440-36-0	43.2	ug/L	108	85 - 115					11/30/12
Barium	7440-39-3	44.0	ug/L	110	85 - 115					11/30/12
Beryllium	7440-41-7	43.5	ug/L	108.8	85 - 115					11/30/12
Cadmium	7440-43-9	42.4	ug/L	106.1	85 - 115					11/30/12
Chromium	7440-47-3	42.9	ug/L	107.2	85 - 115					11/30/12
Cobalt	7440-48-4	43.3	ug/L	108.2	85 - 115					11/30/12
Copper	7440-50-8	43.0	ug/L	107.6	85 - 115					11/30/12
Lead	7439-92-1	44.9	ug/L	112.4	85 - 115					11/30/12
Molybdenum	7439-98-7	43.5	ug/L	108.8	85 - 115					11/30/12
Thallium	7440-28-0	43.6	ug/L	108.9	85 - 115					11/30/12
Tin	7440-31-5	43.3	ug/L	108.2	85 - 115					11/30/12
Arsenic	7440-38-2	41.9	ug/L	104.7	85 - 115					11/30/12
Selenium	7782-49-2	39.2	ug/L	98	85 - 115					11/30/12
<b>MS</b>		<b>QC Sample #85616</b> <b>Original 121436001</b>								
Aluminum	7429-90-5	410	ug/L	102.6	70 - 130					11/30/12
Silver	7440-22-4	41.6	ug/L	104	70 - 130					11/30/12
Antimony	7440-36-0	43.4	ug/L	108.5	70 - 130					11/30/12
Barium	7440-39-3	43.5	ug/L	108.8	70 - 130					11/30/12
Beryllium	7440-41-7	39.3	ug/L	98.2	70 - 130					11/30/12
Cadmium	7440-43-9	41.6	ug/L	103.9	70 - 130					11/30/12

\* - QC result out of range

n/a - Not Applicable

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
Department Inorganic

Group #

WSCF121441

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Chromium	7440-47-3	39.8	ug/L	99.5	70 - 130					11/30/12
Cobalt	7440-48-4	39.7	ug/L	99.4	70 - 130					11/30/12
Copper	7440-50-8	38.5	ug/L	96.2	70 - 130					11/30/12
Lead	7439-92-1	44.3	ug/L	110.7	70 - 130					11/30/12
Molybdenum	7439-98-7	43.9	ug/L	109.8	70 - 130					11/30/12
Thallium	7440-28-0	43.4	ug/L	108.5	70 - 130					11/30/12
Tin	7440-31-5	43.3	ug/L	108.2	70 - 130					11/30/12
Arsenic	7440-38-2	42.0	ug/L	105	70 - 130					11/30/12
Selenium	7782-49-2	38.7	ug/L	96.7	70 - 130					11/30/12
<b>MSD</b>		<b>QC Sample #85617</b>								
		<b>Original 121436001</b>								
		<b>Paired 85616</b>								
Aluminum	7429-90-5	424	ug/L	106	70 - 130	3.20	20			11/30/12
Silver	7440-22-4	42.5	ug/L	106.3	70 - 130	2.10	20			11/30/12
Antimony	7440-36-0	44.1	ug/L	110.3	70 - 130	1.70	20			11/30/12
Barium	7440-39-3	44.5	ug/L	111.2	70 - 130	1.50	20			11/30/12
Beryllium	7440-41-7	41.8	ug/L	104.5	70 - 130	6.20	20			11/30/12
Cadmium	7440-43-9	42.6	ug/L	106.4	70 - 130	2.40	20			11/30/12
Chromium	7440-47-3	40.9	ug/L	102.3	70 - 130	2.70	20			11/30/12
Cobalt	7440-48-4	41.1	ug/L	102.8	70 - 130	3.40	20			11/30/12
Copper	7440-50-8	39.3	ug/L	98.3	70 - 130	2.20	20			11/30/12
Lead	7439-92-1	45.1	ug/L	112.8	70 - 130	1.90	20			11/30/12
Molybdenum	7439-98-7	44.5	ug/L	111.2	70 - 130	1.00	20			11/30/12
Thallium	7440-28-0	44.0	ug/L	110.1	70 - 130	1.50	20			11/30/12

\* - QC result out of range

n/a - Not Applicable

**Quality Control Report****DECEMBER 10, 2012**Attention Scot Fitzgerald  
Department Inorganic**Group #**

WSCF121441

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Tin	7440-31-5	44.0	ug/L	110	70 - 130	1.60	20			11/30/12
Arsenic	7440-38-2	42.5	ug/L	106.3	70 - 130	1.10	20			11/30/12
Selenium	7782-49-2	40.0	ug/L	100	70 - 130	3.30	20			11/30/12

\* - QC result out of range      n/a - Not Applicable

**Quality Control Report****DECEMBER 10, 2012**Attention Scot Fitzgerald  
Department Radiochemistry**Group #** WSCF121441**Analytical Batch** 211036 (QC Batch: 210241)      **Test** Strontium 89/90 (GPC/GEA)  
**Associated Samples** 121441008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed				
<b>BLANK</b>					<b>QC Sample #84914</b>									
Strontium-89_90	SR-RAD		-0.27	pCi/L					U	12/04/12				
<b>LCS</b>					<b>QC Sample #84915</b>									
Strontium-89_90	SR-RAD		90	pCi/L	101.6	80 - 120				12/04/12				
<b>DUP</b>					<b>QC Sample #84916</b>									
					<b>Original 121441008</b>									
Strontium-89_90	SR-RAD	-0.34	-0.40	pCi/L			-16.90	20	U	12/04/12				

\* - QC result out of range

n/a - Not Applicable

**Quality Control Report****DECEMBER 10, 2012****Attention** Scot Fitzgerald  
**Department** Radiochemistry**Group #** WSCF121441**Analytical Batch** 211239 (QC Batch: 210240)      **Test** Strontium 89/90 (GPC/GEA)  
**Associated Samples** 121441004, 121441005, 121441006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>										<b>QC Sample #84911</b>
Strontium-89_90										SR-RAD
LCS										0.39 pCi/L
<b>QC Sample #84912</b>										
Strontium-89_90										SR-RAD
DUP										87 pCi/L
<b>QC Sample #84913</b>										
Original 121430005										
Strontium-89_90	SR-RAD	1.3	pCi/L				44.30	20	*	X
* - QC result out of range										n/a - Not Applicable

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF121441

Analytical Batch 211036 (QC Batch: 210241) Test Strontium 89/90 (GPC/GEA)  
 Associated Samples 121441008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed	
SAMPLE		Sample #121441008									
Strontium Nitrate	10042-76-9			mg	72.7	25 - 105				12/04/12	
BLANK		QC Sample #84914									
Strontium Nitrate	10042-76-9			mg	76.9	25 - 105				12/04/12	
LCS		QC Sample #84915									
Strontium Nitrate	10042-76-9			mg	78.5	25 - 105				12/04/12	
DUP		QC Sample #84916									
		Original 121441008									
Strontium Nitrate	10042-76-9	8.8		mg	73.6	25 - 105	n/a			12/04/12	

\* - QC result out of range

n/a - Not Applicable

## Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF121441

Analytical Batch 211239 (QC Batch: 210240) Test Strontium 89/90 (GPC/GEA)  
 Associated Samples 121441004, 121441005, 121441006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed	
SAMPLE		<b>Sample #121441004</b>									
Strontium Nitrate	10042-76-9			mg	86	25 - 105				12/05/12	
SAMPLE		<b>Sample #121441005</b>									
Strontium Nitrate	10042-76-9			mg	76.9	25 - 105				12/05/12	
SAMPLE		<b>Sample #121441006</b>									
Strontium Nitrate	10042-76-9			mg	76.9	25 - 105				12/05/12	
BLANK		<b>QC Sample #84911</b>									
Strontium Nitrate	10042-76-9			mg	76	25 - 105				12/05/12	
LCS		<b>QC Sample #84912</b>									
Strontium Nitrate	10042-76-9			mg	81.8	25 - 105				12/05/12	
DUP		<b>QC Sample #84913</b>									
		Original 121430005									
Strontium Nitrate	10042-76-9			mg	73.6	25 - 105	n/a			12/05/12	

\* - QC result out of range

n/a - Not Applicable

Attention: Scot Fitzgerald

Group #

WSCF121441

**Quality Control Comments****Department** Inorganic

85343 B2MR83(121423005MS)

**Analyte** Sodium - ICP-6010 - All possible metals

[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

85344 B2MR83(121423005MSD)

**Analyte** Sodium - ICP-6010 - All possible metals

[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

Attention: Scot Fitzgerald

Group #

WSCF121441

**Quality Control Comments****Department** Radiochemistry

84847 B2MR83(121423005DUP)

**Analyte** Gross Beta - GAB Discrete analysis Beta only

- [1] The duplicate is outside of default RPD limits. RPD limit does not apply to results less than 5X the Minimum Detectable Concentration.

84913 B2MKK8(121430005DUP)

**Analyte** Strontium-89\_90 - Strontium 89/90 (GPC/GEA)

- [1] The duplicate is outside of default RPD limits. RPD limit does not apply to results less than 5X the Minimum Detectable Concentration.

**ATTACHMENT4**

**SAMPLE RECEIPT**

Consisting of 8 pages  
Including cover page

**Waste Sampling and Characterization Facility**  
P.O. Box 1970 S3-30, Richland WA 99352  
Phone: (509) 373-7004/FAX: (509) 373-7134

## ACKNOWLEDGEMENT OF SAMPLES RECEIVED

**WSCF Laboratory**

PO Box 650 S3-30  
Richland, WA 99352

ATTN: Scot Fitzgerald

Customer Code: CHPRC

PO #: 401647

Work Order #: 121441

Profile #: I13-006-023

Proj. Mgr.:

Phone:

The following samples were received from you on 11/7/2012 3:30:00 PM. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample #	Sample ID	Matrix	Collected	Received
<b>Tests scheduled</b>				
121441001	B2MXL3	WATER	11/7/2012 11:46	11/7/2012 15:30
		2008-W		
121441002	B2MXL2	WATER	11/7/2012 11:46	11/7/2012 15:30
		2008-W		
121441003	B2MXK2	WATER	11/7/2012 12:27	11/7/2012 15:30
		2008-W		
121441004	B2MXK7	WATER	11/7/2012 11:46	11/7/2012 15:30
		2008-W; H3-COL-W; SR89/90-W; TC99-W		
121441005	B2MXK6	WATER	11/7/2012 11:46	11/7/2012 15:30
		2008-W; H3-COL-W; SR89/90-W; TC99-W		
121441006	B2MXJ9	WATER	11/7/2012 12:27	11/7/2012 15:30
		2008-W; GAB-AO-W; GAB-BO-W; GEA-W; H3-COL-W; SR89/90-W; TC99-W		
121441007	B2MP86	WATER	11/7/2012 14:21	11/7/2012 15:30
		2008-W; 6010-W		
121441008	B2MP83	WATER	11/7/2012 14:21	11/7/2012 15:30
		2008-W; 6010-W; H3-COL-W; SR89/90-W; TC99-W		
121441009	B2MML5	WATER	11/7/2012 14:21	11/7/2012 15:30
		ALK-W; GAB-AO-W; GAB-BO-W		
<b>Test Acronym Description</b>				
<b>Test Acronym</b>		<b>Description</b>		

***Waste Sampling and Characterization Facility***  
**P.O. Box 1970 S3-30, Richland WA 99352**  
**Phone: (509) 373-7004/FAX: (509) 373-7134**

2008-W	ICP-MS (W)
6010-W	ICP-AES (W)
ALK-W	Total Alkalinity (W)
GAB-AO-W	Gross Alpha/Beta (A only)(W)
GAB-BO-W	Gross Alpha/Beta (B only)(W)
GEA-W	Gamma Energy Analysis (W)
H3-COL-W	Tritium by EICHROM Column (W)
SR89/90-W	Strontium 89/90 (GPC) (W)
TC99-W	Technetium-99 (W)

<b>CH2MHill Plateau Remediation Company</b>												
<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>												
C.O.C. # <b>113-006-023</b>												
Page 1 of 1												
Collector	Robert Crow	Contact/Requester	Karen Waters-Husted	Telephone No.	376-4650	Date/Time						
SAF No.	113-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20	Received By						
Project Title	100KR4, DECEMBER 2012	Logbook No.	HNF-N-506 <i>24/34</i>	Rec Chest No.	N/A	Date/Time						
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Arr Bill No.	N/A	Received By						
Protocol	CFR CLA	Priority:	<b>31 Days</b>	Offsite Property No.	N/A	Date/Time						
Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>												
POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)												
<i>j2 4411</i>												
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis						Preservative
B2MAXL3	1	Y	W 1-7-12	1144Q	1x500-mL G/P	200.8_MEALS_ICPMS: DURA LIST (10)						HNO3 to pH <2
B2MAXK7	4	N	W	✓	1x500 mL G/P	200.8_MEALS_ICPMS: DURA LIST (10)						6 Months
B2MAXK7	1	N	W	✓	1x1-L G/P	Strontium-89_90 - Total Sr						6 Months
B2MAXK7	1	N	W	✓	1x1-L G/P	TC99_3MDSK_LSC: Tc-99 (1)						6 Months
B2MAXK7	✓	N	W	✓	1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)						6 Months
												None

Relinquished By <i>Robert Crow</i>	Print <i>R. Crow</i>	Sign <i>R. Crow</i>	Date/Time <b>NOV 07 2012 1530</b>	Received By <i>TA-FARREN JONES</i>	Date/Time <b>NOV 07 2012 1530</b>	Matrix *
Relinquished By			Date/Time	Received By	Date/Time	S = Soil SL = Sediment SO = Solid
Relinquished By			Date/Time	Received By	Date/Time	DS = Dran Solids DL = Dran Liquids T = Tissue WI = Wine
Relinquished By			Date/Time	Received By	Date/Time	SL = Sludge W = Water O = Oil A = Air
Relinquished By			Date/Time	Received By	Date/Time	V = Vegetation X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Date/Time
PRINTED ON 10/24/2012		A-6004-842 (REV 2)

## Chain of Custody

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST												
C.H2MHill Plateau Remediation Company											C.O.C.# <b>113-006-020</b>	
Page 1 of 1												
Collector	Robert Crow	Contact/Requester	Karen Waters-Ivisted			Telephone No.	376-4650					
SAF No.	113-006	Sampling Origin	Hanford Site			Purchase Order/Charge Code	300071ES20					
Project Title	100KR4, DECEMBER 2012	Logbook No.	HNF-N-506 <u>2Q / 3Q</u>			Ice Chest No.	N/A					
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE			Bill of Lading/Air Bill No.	N/A					
Protocol	CERCLA	Priority:	<b>31 Days</b>	<b>PRIORITY</b>			Offsite Property No.	N/A				
SPECIAL INSTRUCTIONS												
10C Area Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647. FY12 and FY13 samples cannot be in the same SDG.												
POSSIBLE SAMPLE HAZARDS/REMARKS  *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)												
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis		Holding Time		Preservative		
B2MXXK6	S	V	W <u>11-7-12</u>	<u>114Q</u>	1x600-mL G/P	2008_METALS_ICPMS: DURA LIST (10)		6 Months		HNO3 to pH <2		
B2MXXK6	1	N	W		1x1-L G/P	Strontium-89,90 - Total Sr		6 Months		HNO3 to pH <2		
B2MXXK6	V	W			1x1-L G/P	TC99_3MDISK_LSC_Tc-99 (1)		6 Months		HCl to pH <2		
B2MXXK6	V	N	W		1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)		6 Months		None		
B2MXXL2	2	Y	W <u>11-7-12</u>	<u>114Q</u>	1x600-mL G/P	2008_METALS_ICPMS: DURA LIST (10)		6 Months		HNO3 to pH <2		

Relinquished By	Print	Sign	Date/Time	Received By	Date/Time	Sign	Date/Time	Received By	Date/Time	Sign	Matrix *
Robert Crow	<u>R. Crow</u>		NOV 07 2012 1530	T. Marziale	NOV 07 2012 1530						S = Soil
Relinquished By			Date/Time	Received By	Date/Time						SF = Sediment
Relinquished By			Date/Time	Received By	Date/Time						SL = Solid
Relinquished By			Date/Time	Received By	Date/Time						WL = Tissue
Final Sample Disposition	Disposal Method (e.g., Return to customer, per lab procedure, used in process)										Date/Time
PRINTED ON	A-6004-842 (REV 2)										Report ID: 121441
December 10, 2012 11:12:46											Page 59 of 62
3004.1.1084.3											
Report ID: 121441											
Group # WSCF121441											

## Sample Receipt

DECEMBER 10, 2012

## Chain of Custody

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST												
C.H2MHill Plateau Remediation Company											C.O.C.# <b>113-006-017</b>	
Collector	Robert Crow	Contact/Requester	Karen Waters-Husted			Telephone No. <u>376-4650</u>			Purchase Order/Charge Code <u>300071ES20</u>			
SAF No.	<b>113-006</b>	Sampling Origin	Hanford Site			Ice Chest No. <u>N/A</u>						
Project Title	100KR4, DECEMBER 2012	Logbook No.	HNF-N-506 36 / 36			Bill of Lading/Air Bill No. <u>N/A</u>						
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE			Offsite Property No. <u>N/A</u>						
Protocol	CERCLA	Priority	<b>PRIORITY</b>	SPECIAL INSTRUCTIONS 100-Ac Genarator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 10167. FY12 and FY13 samples cannot be in the same SDG.			Hold Time			Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
POSSIBLE SAMPLE HAZARDS/REMARKS  *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990) (1993)												
Sample No.	Filter	*	Date	Time	Nu/Type Container	Sample Analysis		Holding Time		Preservative		
B2MXK2	3	Y	W	11-7-12	12:27	1x500-mL G/P	200.8_METALS_ICPMS: DURA LIST (10)	6 Months		HNO3 to pH <2		
B2MXJ9	6	Y	W			1x500-mL G/P	200.8_METALS_ICPMS: DURA LIST (10)	6 Months		HNO3 to pH <2		
B2MXJ9	N	W				1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2)	6 Months		HNO3 to pH <2		
B2MXJ9	N	W				1x500-mL G/P	GAMMA_GS: List 1 (10)	6 Months		HNO3 to pH <2		
B2MXJ9	N	W				1x500-mL G/P	Strontium-89, 90 - Total Sr	6 Months		HNO3 to pH <2		
B2MXJ9	N	W				1x1-L G/P	TC99_3MDISK_LSC: Tc-99 (1)	6 Months		HCl to pH <2		
B2MXJ9	N	W				1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	6 Months		None		

Requisitioned By Robert Crow	Print <i>R Crow</i>	Sign <i>NOV 07 2012</i>	Date/Time 1530	Received By TA Evans	Date/Time NOV 07 2012	Sign <i>NOV 07 2012</i>	Date/Time 1530	Matrix *
Relinquished By			Date/Time 1530	Received By	Date/Time NOV 07 2012	Sign <i>NOV 07 2012</i>	Date/Time 1530	S = Soil SE = Sediment SL = Sludge W = Water O = Oil A = Air
Relinquished By			Date/Time 1530	Received By	Date/Time NOV 07 2012	Sign <i>NOV 07 2012</i>	Date/Time 1530	D.S. = Drum Solids D.L. = Drum Liquids T = Tissue W = Wipe L = Liquid V = Vegetation X = Other
Relinquished By			Date/Time 1530	Received By	Date/Time NOV 07 2012	Sign <i>NOV 07 2012</i>	Date/Time 1530	

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Deposited By

Date/Time: *A-6004-842 (REV 2)*

## Chain of Custody

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST									
C.O.C. #		113-003-106							
		Page 1 of 1							
Collector	Robert Crow	Contact/Requester	Karen Waters-Husted						
SAF No.	113-003	Sampling Origin	Hanford Site						
Project Title	100KR4(2), NOVEMBER 2012	Logbook No.	HNF-N-506 3Q / 3Q						
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE						
Protocol	CERCLA	Priority:	PRIORITY						
POSSIBLE SAMPLE HAZARDS/REMARKS									
*** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not reclassifiable per DOE Order 5400.5 (1990/1993).									
Sample No.	Filter	Date	Time	Not/Type Containcr	Sample Analysis	Hold Time	Hold Time	Preservative	
B2MP86 7	Y	W 11-7-12	1421	1x500-mL G/P	200.8_METALS_ICPMS: DURA LIST (10)	6 Months		HNO3 to pH <2	
B2MP86 ✓	Y	W		1x500-mL G/P	6010_METALS_ICP_List-3 (18)	6 Months		HNO3 to pH <2	
B2MP83 8	N	W		1x500-mL G/P	200.8_METALS_ICPMS: DURA LIST (10)	6 Months		HNO3 to pH <2	
B2MP83 ✓	N	W		1x500-mL G/P	6010_METALS_ICP_List-3 (18)	6 Months		HNO3 to pH <2	
B2MP83 ✓	N	W		1x1-L G/P	Strontium-89.90 - Total Sr	6 Months		HNO3 to pH <2	
B2MP83 ✓	N	W		1x1-L G/P	TC99_3MDSK_LSC: Tc-99 (1)	6 Months		HClO pH <2	
B2MP83 ✓	N	W 11-7-12	1421	1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	6 Months		None	

Reinquished By Robert Crow	Print <i>R. Crow</i>	Sign <i>TA Frazee, Chas. Jr.</i>	Date/Time NOV 07 2012 15:30	Received By TA Frazee, Chas. Jr.	Date/Time NOV 07 2012 15:30
Reinquished By			Date/Time	Received By	Date/Time
Reinquished By			Date/Time	Received By	Date/Time
Reinquished By			Date/Time	Received By	Date/Time

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process)  
PRINTED ON 10/10/2012 Disposed By Date/Tme  
A-6004-842 (REV 2)

## Sample Receipt

DECEMBER 10, 2012

## Chain of Custody

C112M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST											
Collector	Robert Crow	Contact/Requester	Karen Waters-Husted			Telephone No.	376-4650						
SAF No.	S13-011	Sampling Origin	Hanford Site			Purchase Order/Charge Code	300071ES20						
Project Title	SURV, NOVEMBER 2012	Logbook No.	11NF-N-506 <i>26 / 3idq</i>			Ice Chest No.	N/A						
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE			Bill of Lading/Air Bill No.	N/A						
Protocol	CFRCIA	Priority:	31 Days	<b>PRIORITY</b>	SPECIAL INSTRUCTIONS	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>						
				FY12 and FY13 samples cannot be in the same SPG. Site-Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647.	Offsite Property No.	N/A							
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>													
**** Contains Radioactive Material at concentrations that are not regulated for transportation per 19 CFR but are not releasable per DOE Order 5400.5 (1999/1993)													
Sample No	Filter *	Date *	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative					
BZMML5	9	N	W	11-7-12	14:21	1x250-mL GIP	2320_ALKALINITY: Alkalinity (1)	14 Days	Cool<-4C				
BZMML5	✓	N	W	✓	✓	1x500-mL GIP	ALPHABETTA_GPC: Alpha discrete + Beta (2)	6 Months	HNO3 to pH <2				

  

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Robert Crow	R. Crow	<i>[Signature]</i>	NOV 07 2012 15:30	TA FRANCIS JONES	<i>[Signature]</i>	<i>[Signature]</i>	NOV 07 2012 15:30	S = Soil
Relinquished By			Date/Time	Received By			Date/Time	DS = Dran Solids
Relinquished By			Date/Time	Received By			Date/Time	SE = Sediment
Relinquished By			Date/Time	Received By			Date/Time	SO = Solid
Relinquished By			Date/Time	Received By			Date/Time	SL = Sludge
FINAL SAMPLE DISPOSITION	Disposal Method(e.g., Return to customer, per lab procedure, used in process)							Date/Time
PRINTED ON 10/10/2012								A-6004-842 (REV 2)